

## Research Article

# Prevalence of overweight and obesity among students of Ardabil University, Iran

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**Received:** 23 April 2016

**Accepted:** 18 May 2016

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## ABSTRACT

**Background:** Overweight and obesity are most important health problem in all societies which its prevalence is rapidly increasing. The relationship between obesity and many diseases such as type 2 diabetes, hyperlipidemia, hypertension, coronary heart disease and breast cancer has been proven in many studies. This study aimed to determine prevalence of overweight and Obesity among 240 students of Ardabil University.

**Methods:** As a cross sectional study height, weight, waist circumference and hip circumference were measured. Food frequency questionnaire (FFQ) was completed. BMI and WHR were used to assess the overweight and obesity. Data analyzed by statistical methods in SPSS.19.

**Results:** Of all students, 62.5% were female and the mean age of students was  $21.5 \pm 2.2$ . According to WHR, 66 students (27.5%) have WHR more than 0.8 (were in un-healthy range) which from them, 95.5% were female and 4.5% male. According to BMI, 123 students (51.3%) have overweight and 71 students (29.6%) obesity which from them 53.7 % and 81.7% was female, respectively. The rate of obesity and overweight was significantly in female more than male.

**Conclusions:** According to the moderate to high prevalence of obesity and overweight between Ardabil university students, the importance of proper nutrition, improve lifestyle and providing continuing education on nutritional discussions is essential.

**Keywords:** Prevalence, Overweight, Obesity, Ardabil

## INTRODUCTION

Obesity is defined as an impaired physical composition of the body as a form of increasing in the amount of adipose tissue and is very common.<sup>1-3</sup>

Obesity prevalence is increasing in the society and currently 0.5 billion of world population have obesity. Currently the prevalence of obesity in adults of many countries was between 10-40%.<sup>4-5</sup> In Iran, the prevalence of obesity and overweight in adults was 23% and 40%, respectively.<sup>6-7</sup>

Overweight is so prevalent in the world that around 1.1 billion of adults and 10% of younger affected it now. Also it has been reported between 25-82% in eastern Mediterranean and 75-88% in around Persian Gulf country and 64% in Iranian women are in high risk groups for obesity and overweight.<sup>8-11</sup>

Increasing urbanization and industrialization in many countries, along with behavioral and nutritional changes to feeding high fat and energy and lack of movement, cause to increasing obesity in communities that parallel to

the increase in the last 30 years, cardiovascular disease, type II diabetes and some cancers occurred.<sup>12-14</sup>

In addition, obesity and its complications impose a great financial load on the individual and society. Obesity is occurs by the result of several factors including genetics, hormonal factors and metabolic behavior.<sup>15-18</sup>

Given the importance of overweight and its effect on people lifestyle and habits change, the aim of this study was to access the prevalence of overweight and Obesity in students of Ardabil university.

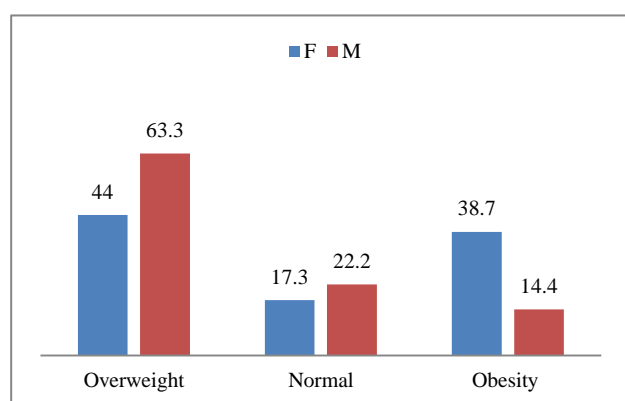
## METHODS

This is a descriptive-Cross sectional study that has been done on 240 students selected randomly form Ardabil medical and non-medical university students in 2014. Data collected for all students by interview and we used balance for measure weight and Sewing meter for measure height and then calculate BMI and also, waist and hips for calculate the WHR.

Type of food intake calculated by FFQ for all students. BMI between 25 to 29.9 considered as overweight and more than 30 was considered general obesity. Waist-to-hip ratio (WHR) more than 0.8 considered as central obesity. Collected data analyzed by statistical methods in SPSS.19.

## RESULTS

From all students, 150 (62.5%) were female and rest of them were male. The mean age of male students was 21.7 and female students was 21.3 years. According to BMI, 51.3% of all students have overweight. Of all overweight cases most of them were female (53.7%) (Figure 1).

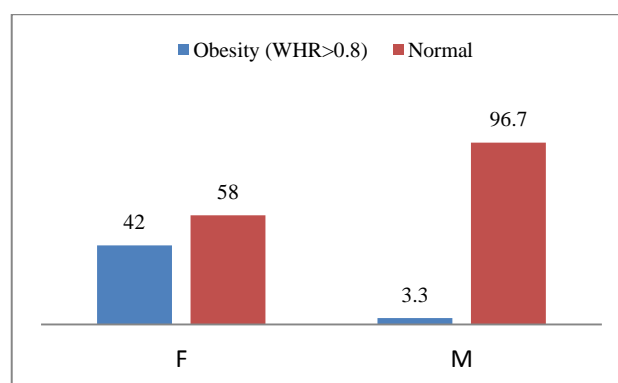


**Figure 1: Overweight and obesity rate by BMI in two sexes.**

According to the WHR, 66 (27.5%) had WHR >0.8 which were in unhealthy high risk group (Figure 2). The rate of central obesity in female student's significantly more than male students ( $p=0.001$ ).

According to FFQ, most of students used bread and rice  $12.3 \pm 6.7$  time in week and then fruits with  $5.2 \pm 2.1$  and chocolate with  $4.9 \pm 3.2$  were in the second and thirty weekly most used consumptions. There was a significant negative correlation between BMI and uses vegetables ( $p=0.012$ ), meat and fish ( $p=0.007$ ), milk and dairy ( $p=0.025$ ), fried chicken and fish ( $p=0.042$ ) and soft drinks ( $p=0.049$ ).

Also there was a significant negative correlation between WHR and uses soft drinks ( $p=0.049$ ). Of all single students, 50.9% have overweight which from them 53.7% were male. Most of cases with overweight live in dorm and use Bread and cereals.



**Figure 2: Overweight and obesity rate by WHR in two sexes.**

## DISCUSSION

According to National Health Organization (NHO) and FDA report, in years 1999-2002, the prevalence of obesity in cases with upper 20 years old was 30.4%.<sup>15</sup> A study in Australia showed that about 60% of adults have overweight or obese.<sup>20</sup>

In year 2000 in Turkey the ratio of obsess people in age group up 30 years has reported 21.9%.<sup>21</sup>

The current study between Ardabil university students showed that according to the WHR, 66 students (27.5%) have central obesity which from them 95.5% were female and rest of them were male. According to the BMI, 123 students (51.3%) have overweight and 71 students (29.6%) have general obesity. Soleimani and et al in a study showed that 14.8% of all students have overweight and obesity which was lower than our study results.<sup>22</sup>

Mazlounzadeh and et al in a study showed that 30.7% of students have overweight and 15% obesity and prevalence of obesity has positive relation with age and sex and the rate of obesity in female was three time upper than male and the ratio of obese people in both sexes increase by increasing age and in age group 45-54, its reach to maximum rate.<sup>23</sup>

Faghih and et al in a study showed that 40.5% of students have WHR >0.8 (central obesity) and 9.3% have overweight. In this study, 23.3% of students like to eat sweets, chips and snack between meals.

In this study there was a negative significant relation between BMI and consumption of butter, milk, meat and eggs and also, between WHR and consumption eggs and butter. Results showed that the general obesity hasn't prevalent in samples but the rate of central obesity by WHR isn't in acceptance range.<sup>24</sup>

In this study we investigated the food consumed by students and observed that the mean of bread and rice consumption in male students was more than other foods. Also, donuts consumption was less than other foods and Sausages, burgers and pizza consumption was low. Snack chips and snacks in moderate rate were used as junk food.

Other studies confirmed that there was a significant correlation between BMI and WHR with some food consumptions which was similar to our study results.<sup>8-11</sup>

## CONCLUSION

Results showed that the prevalence of overweight and obesity between Ardabil city students was in upper rate, so attention to the present appropriate programs for nutrition and better life style and doing continues education was essential.

## ACKNOWLEDGMENTS

Authors would like to thanks all students from all university which completed the questionnaires and participated in the study.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: The study was approved by the Institutional Ethics Committee*

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**Cite this article as:** Amani F, Fathi A, Farzaneh E, Kahnamouei-aghdam F, Goudarzian M. Prevalence of overweight and obesity among students of Ardabil University, Iran. *Int J Community Med Public Health* 2016;3:1636-9.